Schedule of Accreditation

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Accredited to ISO/IEC 17025:2005

EffecTech Limited

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Testing performed by the Organisation at the locations specified below

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details		Activity	Location code
Address Dove House Dove Fields Uttoxeter Staffordshire ST14 8HU	**Local contact** Dr Gavin Squire Tel: +44 (0)1889 569229 Fax: +44 (0)1889 569220 email: gavin.squire@effectech.co.uk	Gas Testing	**Uttoxeter**
Address N-163 MIDC Tarapur Boisar District Palghar - 401506 Maharashtra India	**Local contact** Padmakar Tillu Tel: +91 (0)2525 276137 Fax: +91 (0)2525 276827 email: padmakar.tillu@effectech.co.in	Gas Testing	**Tarapur**
Address QP West Support Services Area Ghuwairiya Street IR # 1 Ras Laffan Qatar	**Local contact** Biju Davis Tel: +974 55 89 8625 Fax: +974 44 51 5319 email: biju.davis@effectech.com.qa	Gas Testing	**Qatar**

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement		Standard specifications/ Equipment/Techniques used	Location Code
	Chemical Analysis			
NATURAL GAS	amount fraction (%mol/mol)		**In-house method TM001/UT**	Uttoxeter
	nitrogen	0.1 to 22	Analysis of natural gas using gas chromatography (GC-TCD and GC-FID)	
	carbon dioxide	0.05 to 15		
	methane	34 to 100		
	ethane	0.1 to 35		
	propane	0.05 to 15		
	iso-butane	0.01 to 2		
	n-butane	0.01 to 2		
	neo-pentane	0.002 to 0.35		
	iso-pentane	0.005 to 0.35		
	n-pentane	0.005 to 0.35		
	C_6+[1]	0.005 to 0.35	[1] the sum of all hydrocarbons containing six carbon atoms or greater	
	2-methylpentane	0.0001 to 0.1		
	3-methylpentane	0.0001 to 0.1		
	2,2-dimethylbutane	0.0001 to 0.1		
	n-hexane	0.0001 to 0.1		
	hexanes [2]	0.0001 to 0.1	[2] the amount fraction of a grouped component is the sum of all isomers in that group except for those identified separately	
	benzene	0.0001 to 0.1		
	cyclohexane	0.0001 to 0.1		
	n-heptane	0.0001 to 0.1		
	heptanes [2]	0.0001 to 0.1		
	toluene	0.0001 to 0.1		
	methylcyclohexane	0.0001 to 0.1		
	n-octane	0.0001 to 0.05		
	octanes [2]	0.0001 to 0.05		
	n-nonane	0.0001 to 0.02		
	nonanes [2]	0.0001 to 0.02		
	n-decane	0.0001 to 0.005		
	decanes [2]	0.0001 to 0.005		
	helium	0.0011 to 0.2		
	hydrogen	0.0005 to 0.2		
	oxygen	0.001 to 1		
	argon	0.0005 to 0.05		

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
	Chemical Analysis (cont'd)		
NATURAL GAS (cont'd)	amount fraction (%mol/mol)	**In-house methods** **TM005/TA** **TM022/QA**	Tarapur Qatar
	nitrogen 0.1 to 12 carbon dioxide 0.05 to 8 methane 64 to 100 ethane 0.1 to 14 propane 0.05 to 8 iso-butane 0.01 to 1.2 n-butane 0.01 to 1.2 neo-pentane 0.002 to 0.35 iso-pentane 0.005 to 0.35 n-pentane 0.005 to 0.35 2-methylpentane 0.0001 to 0.1 3-methylpentane 0.0001 to 0.1 2,2-dimethylbutane 0.0001 to 0.1 n-hexane 0.0001 to 0.1 hexanes [2] 0.0001 to 0.1 benzene 0.0001 to 0.1 cyclohexane 0.0001 to 0.1 n-heptane 0.0001 to 0.1 heptanes [2] 0.0001 to 0.1 toluene 0.0001 to 0.1 methylcyclohexane 0.0001 to 0.1 n-octane 0.0001 to 0.05 octanes [2] 0.0001 to 0.05 n-nonane 0.0001 to 0.02 nonanes [2] 0.0001 to 0.02 n-decane 0.0001 to 0.005 decanes [2] 0.0001 to 0.005 oxygen 0.001 to 1	Analysis of natural gas using gas chromatography (GC-TCD and GC-FID) [2] the amount fraction of a grouped component is the sum of all isomers in that group except for those identified separately	

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
	Chemical Analysis (cont'd)		
NATURAL GAS (cont'd)		**In-house methods** **TM001/UT** **TM005/TA** **TM022/QA**	Uttoxeter Tarapur Qatar
	Calculated values from composition		
	superior calorific value inferior calorific value relative density density superior Wobbe index inferior Wobbe index molar mass compression factor	Values calculated according to **ISO 6976:1995** (including amendment No 1, May 1998) on a *real* or *ideal* gas basis assuming mixture is dry (free from water) Combustion properties can be expressed in units of the Joule (J) or in kilowatt hours (kWh)	
	gross calorific value net calorific value relative density density gross Wobbe index net Wobbe index molar mass compression factor	Values calculated according to **ISO 6976:2016** on a *real* or *ideal* gas basis assuming mixture is dry (free from water) Combustion properties can be expressed in units of the Joule (J) or in kilowatt hours (kWh)	
	gross heating value net heating value relative density compressibility factor	Calculated values according to methods given in **GPA 2172-09** (2009) using data tables from **GPA 2145-09**	
	gross heating value net heating value relative density compressibility factor	Calculated values according to methods given in **ASTM D3588-98** (2011) using data tables from **GPA 2145-09**	
	Calculated values from composition	**In-house method TM001/UT**	Uttoxeter
	carbon dioxide emission factor (gross combustion energy basis) carbon dioxide emission factor (net combustion energy basis) carbon dioxide emission factor (volume basis)	Calculated values in support of the COMMISSION REGULATION (EU) No 601/2012 of 21 June 2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council of Brussels, 18/VII/2007 C (2007) 3416 final (publ EU Commission 18th July 2007)	

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
	Chemical Analysis (cont'd)		
NATURAL GAS (cont'd)	amount fraction (ppm mol/mol)	**In-house method TM002/UT**	Uttoxeter
	hydrogen sulphide 0.05 to 10 carbonyl sulphide 0.05 to 10 methanethiol (methyl mercaptan) 0.05 to 10 ethanethiol (ethyl mercaptan) 0.05 to 10 2-methyl-2-propanethiol (tert-butyl mercaptan) 0.05 to 10 propanethiol (n-propyl mercaptan) 0.05 to 10 butanethiol (n-butyl mercaptan) 0.05 to 10 2-propanethiol (iso-propyl mercaptan) 0.05 to 10 dimethyl sulphide 0.05 to 10 ethyl methyl sulphide (methyl ethyl sulphide) 0.05 to 10 diethyl sulphide 0.05 to 10 tetrahydrothiophene (THT) 0.05 to 10	Analysis of sulphur components in natural gas using gas chromatography with sulphur chemiluminescence detection (SCD)	
PETROLEUM AND PETROLEUM PRODUCTS	Chemical Analysis		
Composition of high pressure condensate fluids and stabilised condensates	water content 0.001 % to 5.0 % by mass	**In-house method TM007/UT** based on IP386	Uttoxeter
	density 0.68 g/ml to 0.97 g/ml	**In-house method TM008/UT** based on IP365	
	stabilised condensate composition to nC_{36}	**In-house method TM009/UT** using gas chromatography	
END			